



Panchajanya Vidya Peetha Welfare Trust (Regd)

# Dr. Ambedkar Institute of Technology

An Autonomous Institution, Affiliated to Visvesvaraya Technological University, Belagavi,  
Aided by Govt of Karnataka, Approved by All India Council for Technical Education (AICTE), New Delhi  
Accredited by NBA and NAAC with 'A' Grade

BDA Outer Ring Road, Mallathalli, Bengaluru - 560 056

Ref. No. ....

Date : .....

## Department of Electronics and Telecommunication

The following list of courses have been approved by the BOS committee for revision in course content or introducing as a new course in the scheme 2018-2022.

Subject	Subject code	Remarks
Control System	TE551	Introduced in 2018
Adaptive Signal Processing	TE663	Revised in 2018
Global System for Mobile Communication	TE835	Introduced in 2018
Internet of things	TE746	Introduced in 2018
Analog Communication	TE52	Revised in 2019
Control System	TE551	Revised in 2019
Digital Communication	TE61	Revised in 2019
Microwave System	TE64	Revised in 2019
Ops using C++	TE661	Introduced in 2019
Signals and Systems	18ET43	Revised in 2020
Analog Communication and LIC	18ET551	Revised in 2020
Wireless Mobile Networks	18TE72	Introduced in 2020
Control System	18TE551	Introduced in 2020
Optical Communication and Networks	18TE731	Revised in 2021
Mobile Communication	18TE732	Revised in 2021
Artificial Intelligence and Machine learning	18TE733	Introduced in 2021
Spread Spectrum Communication	18TE741	Introduced in 2021
Digital Image Processing	18TE742	Introduced in 2021
Internet of things	18TE752	Revised in 2021

  
Signature of BOS Chairman

  
Signature of Principal  
PRINCIPAL  
Dr. Ambedkar Institute of Technology  
Bengaluru-560 056

**Dr. Ambedkar Institute of Technology**  
**Department of Electronics & Telecommunication Engineering**

The enclosed documents are verified and approved.

*S. S. T.*  
for HoD H. O. D  
Dept. of Electronics & Telecommunication Engg.  
Dr. Ambedkar Institute of Technology  
Bengaluru-560 056

Dr. Ambedkar Institute of Technology  
Bengaluru-560 056

**Department of Telecommunication Engineering  
Dr. Ambedkar Institute of Technology, Bangalore  
(An Autonomous Institute affiliated to VTU)**

**Date: 21-03-2017**

**RESOLUTIONS OF BOS MEETING-UG**

BOS meeting for finalizing the scheme and syllabus for UG 3rd to 8th Semester, Telecommunication Engineering and PG 1<sup>st</sup> to 4<sup>th</sup> semester. Digital communication & Networking was held on 21.03.2017. Following members were present in the meeting:

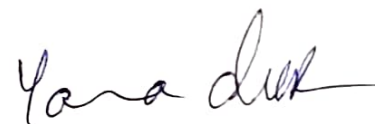
- (1) Dr. Yamuna Devi C. R., Chairman
- (2) Dr. Dinesh. External Subject Expert
- (3) Dr. Jayanthi K. Murthy, External Subject Expert
- (4) Dr. K.R. Nataraj, External Subject Expert
- (5) Prof. P. Nagaraju, External Subject Expert
- (6) Dr. H. S. Sheshadri ,VTU Nominee
- (7) Mr. T. Rajendra Prasad, Industry Representative
- (8) Mr. Umesh R. Rao, Industry Representative
- (9) Mrs. Lakshmi Bhaskar, Alumni with PG degree
- (10) Dr. B. Sivakumar, Internal faculty member
- (11) Vidya Honguntikar, Internal faculty member
- (12) K. V. Mahesan, Internal faculty member
- (13) Aravinda H. L., Internal faculty member
- (14) Usharani M. A., Internal faculty member
- (15) Dr. Prashanth C.R., Internal faculty member
- (16) Chandrakala V., Internal faculty member
- (17) Sudha T., Internal faculty member

Chairman-BOS welcomed all the members for BOS meeting.  
Following points were discussed in the meeting:

- (1) In TE32-DSD few more applications to be included and mod-n counter can be mentioned instead of mod-6 counter.

- (2) To include Mathematical concepts related to telecommunication specialization- Faculty confirmed that the concepts are already included in 1<sup>st</sup> and 2<sup>nd</sup> year Maths subjects.
- (3) In TE33- CT No. of teaching hours for 3<sup>rd</sup> unit to reduce from 8 to 6 hours and 4<sup>th</sup> and 5<sup>th</sup> unit to have 8 hours each. Also internal choices to be given from units 4 and 5.
- (4) In TE34- M&I, to include calibration concepts along with errors and safety measures.
- (5) In TE35- FT, to include applications in the syllabus and have guest lectures by industry experts.
- (6) In TE42- TLCS- to include applications at the end of each chapter to have clarity in the subject.
- (7) Control Systems subject can be included in electives and Transmission Lines subject can be made as core subject.
- (8) In TE43- S&S include frequency response in 5<sup>th</sup> unit.
- (9) In TE45- Op Amp & its applications. replace 2<sup>nd</sup> text book (by Roy Choudhary) by Gayakwad.
- (10) TEL47- HDL Lab- include study experiment- simulation of elevator as main experiment itself.
- (11) TE52- AC- to include Pulse Modulation, FM radio and stereo multiplexing as applications in 4<sup>th</sup> unit.
- (12) TE53- A&WP- to include microstrip antenna concept in theory as the related experiment is included in O&MS Lab.
- (13) TE55- Fundamentals of CMOS VLSI- unit 3 is of 10 hours which can be reduced.
- (14) TEL57- AC Lab- combine PAM, PWM, PPM modulation and demodulation and add some more experiments like amplitude modulation using ICs.
- (15) TEL58- LIC Lab- Combine first 4 experiments and add more experiments. To include Labview for simulation along with hardware.
- (16) TE61- reduce the no. of hours in 2<sup>nd</sup> unit to (5+5) hours and change the no. of hours in 3<sup>rd</sup> unit to (7+7) hours.
- (17) TE62- ESD to include text book authored by Shibu. Also to include contents on Single core, Multicore, SoC- different vendors giving various options.
- (18) TE63- SC- increase no. of hours for unit 3.
- (19) TE65-ITC- combine unit 2 and 3 and introduce convolution coding and decoding as unit 5.
- (20) TEL67- MW lab- include light runners.
- (21) Change Adaptive Signal Processing departmental elective by any other subject related to telecommunication branch.
- (22) TE73- CCN, include applications such as Bluetooth and WiFi.
- (23) TE81- ON- topics already taught in previous semester subjects such as MC and OFC to be removed.
- (24) TE82- Multimedia Communication- Remove out dated topics and include new standards.
- (25) TE835- GSM- include 4G and 5G technology.
- (26) Include IoT as a subject- Already included as a departmental elective in final year.
- (27) To mention sub topics in the syllabus instead of subtopic numbers in all the subjects.
- (28) To include latest edition text books and reference books.

- (21) Change Adaptive Signal Processing departmental elective by any other subject related to telecommunication branch.
- (22) TE73- CCN, include applications such as Bluetooth and WiFi.
- (23) TE81- ON- topics already taught in previous semester subjects such as MC and OFC to be removed.
- (24) TE82- Multimedia Communication- Remove out dated topics and include new standards.
- (25) TE835- GSM- include 4G and 5G technology.
- (26) Include IoT as a subject- Already included as a departmental elective in final year.
- (27) To mention sub topics in the syllabus instead of subtopic numbers in all the subjects.
- (28) To include latest edition text books and reference books.
- (29) For the students admitted in 2015, three lab components in 5<sup>th</sup>, 6<sup>th</sup> and 7<sup>th</sup> semesters will continue as decide in the BOS meeting-2016.
- (30) Department Vision, Mission, PO's are discussed and PEO's are reframed.



**Chairman - BOS**

CHAIRMAN

Board of Studies

Department of Telecommunication Engg

Dr. Ambedkar Institute of Technology

BANGALORE-560 056

**Dr. Ambedkar Institute of Technology, Bangalore**  
(An Autonomous Institute affiliated to VTU, Accredited by NAAC with 'A' grade)

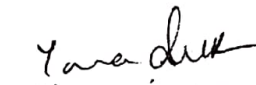

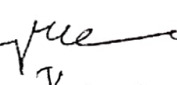
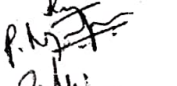

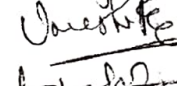

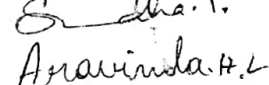

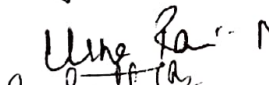
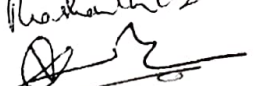
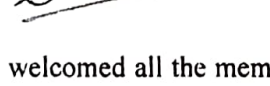
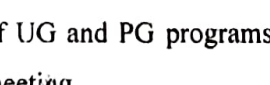



**Department of Telecommunication Engineering**

(UG and PG Programs Accredited by NBA)

Date: 15-06-2018

**Resolutions of Board of Studies Meeting – Under Graduation and Post Graduation Programs**

Board of Studies meeting for finalizing the scheme and syllabus for Under Graduation Program 3rd to 8th Semester, Telecommunication Engineering and Post Graduation Program 1<sup>st</sup> to 4<sup>th</sup> semester M Tech in Digital communication and Networking, was held on 15.06.2018. Following members were present in the meeting:

- |                             |                         |  |
|-----------------------------|-------------------------|--|
| (1) Dr. Yamuna Devi C. R.,  | Chairman                |    |
| (2) Dr. H. S. Sheshadri,    | VTU Nominee             |    |
| (3) Dr. S. Shanthala,       | External Subject Expert |    |
| (4) Dr. K.R. Nataraj,       | External Subject Expert |   |
| (5) Dr. Jayanthi K. Murthy, | External Subject Expert |   |
| (6) Prof. P. Nagaraju,      | External Subject Expert |   |
| (7) Mr. Sharaschandra M.K., | Industry Representative |  |
| (8) Mr. T. Rajendra Prasad, | Industry Representative |  |
| (9) Mr. Umesh R. Rao,       | Industry Representative |  |
| (10) Mrs. Laksimi Bhaskar,  | Alumni with PG degree   |  |
| (11) Dr. B. Sivakumar,      | Internal faculty member |  |
| (12) Mrs. Sudha T,          | Internal faculty member |  |
| (13) Mr. K. V. Mahesan,     | Internal faculty member |  |
| (14) Mr. Aravinda H. L.,    | Internal faculty member |  |
| (15) Mrs. P.C. Shruthi,     | Internal faculty member |  |
| (16) Mrs. Usha Rani M. A.,  | Internal faculty member |  |
| (17) Dr. Prashanth C.R.,    | Internal faculty member |  |
| (18) Mrs. Chandrakala V.,   | Internal faculty member |  |

The Chairman, Board of Studies (UG and PG Programs) welcomed all the members for BoS meeting and held discussion on scheme and syllabus of UG and PG programs for the academic year 2018-19 and following are the essence of the meeting.

## **PG Program:**

1. It was suggested to include recent edition text books and reference books to all subjects. (Action: All faculty members)
2. The contents of fourth semester Wireless Sensor Networks shall be revised and included as an elective for first semester (4G, SDR, ZIGBEE and other advanced topics to be included). (Action: Dr. B. Sivakumar)
3. The contents of first semester Advanced Computer Networks has to be revised. (Action: Dr. B. Sivakumar)
4. In second semester Modern Digital Signal Processing, unit 5 on Power Spectrum Estimation shall be replaced by Applications of DSP. (Action: Dr. Prashanth C R)
5. Subject titled Information and Network Security has to be changed to Cryptography and Network Security and contents shall be refined. (Action: P C Shruthi)
6. Wireless Communication syllabus shall be refined referring to text 2. (Action: Dr. B Sivakumar)
7. Including the subject Cloud Computing may be considered in place of Network Programming. (Action: Dr. Yamuna Devi C R/ Sowmya M)
8. Multirate and Filter Banks shall be shifted from second semester to fourth semester as an elective subject. (Action: Dr. Prashanth C R)
9. Wireless Broadband LTE 4G shall be renamed as Wireless Broadband Communication. (Action: V Chandrakala)
10. In the subject Advances in Image Processing, reference book should be considered as a text book and the contents to be revised. (Action: Aravinda H L)
11. Scheme of Teaching and Examination shall be modified according to changes made to syllabus. (Action: Dr. Prashanth CR/ V Chandrakala)
12. Simulation and Modelling Analysis to be renamed as Modelling and Analysis. (Action: Vidya H)

## **UG Program:**

### **Scheme & syllabus discussion for the Academic year 2018-19:**

As per the preliminary BoS meeting held on 16.05.18 with the faculty members and student representatives, it was resolved to incorporate the changes and improvements in the scheme and syllabus.

There were changes to be made which needed immediate attention in subjects like Microcontrollers in 4th semester and Internet of Things in 7th semester.

1. It was resolved to reframe the syllabus by including basic concepts of Microprocessors in the 1st unit. Also, the contents related to MSP430 in 4th and 5th unit were replaced with contents of 8051 microcontroller.
2. MSP430 may be made offered as an individual elective subject.
3. It was resolved to reframe the complete syllabus of Internet of Things and the same was approved.


**The format of the Scheme as per issued by the institute for the Academic year 2018-19 and the discussion of the scheme was made as per the format given.**

1. A suggestion was given to include debate among the students of a class on a topic related to subject.
2. Measurements & Instrumentation(M&I) subject can be clubbed with Electronic Devices and Circuits. Hence, in place of M&I, the subject Transmission Lines & Waveguides(TLW) can be included in 3<sup>rd</sup> semester.
3. TLW will be removed from 4<sup>th</sup> semester and replaced with a combined subject Analog Communication & Linear Integrated Circuits (AC&LIC).
4. The subject Control Systems(CS) will be included in 4<sup>th</sup> semester.
5. The subject Information Theory and Coding(ITC) will be included in 5<sup>th</sup> semester and any other subject should be included in Program Elective (PE) list.
6. Digital Communication is made as a core subject in 5<sup>th</sup> semester.
7. Computer Communication Networks theory and Laboratory shall be included in 6<sup>th</sup> semester.
8. Microwave Engineering(MW) theory and laboratory shall be included in 7<sup>th</sup> semester and made as a core subject.
9. OOPS using C++ shall be included as Open Elective(OE) and any other subject to be included in PE list.



10. The subjects Wireless and Mobile Networks and Automotive Electronics can be introduced as Program Electives (PE) in 8<sup>th</sup> semester.
11. Department Vision, Mission, PO's and reframing of PEO's are discussed and analyzed.

The Chairman, BoS-UG and PG concluded the meeting after thanking all the members present.

  
Chairman, BoS- UG andPG

CHAIRMAN  
Board of Studies  
Department of Telecommunication Engg;  
Dr. Ambedkar Institute of Technology  
BANGALORE-560 098

- CWC to:
1. The Principal, Dr. AIT, for information.
  2. The Dean (Aca), Dr. AIT, for information.

**RESOLUTIONS OF BOS MEETING**

BOS meeting for revision of scheme and syllabus for UG (B.E.) 3<sup>rd</sup> to 8<sup>th</sup> Semester, Telecommunication Engineering , PG (M.Tech.) 1<sup>st</sup> to 4<sup>th</sup> semester, Digital communication & Networking and also to revise Vision, Mission and Program Educational Outcomes of the department, was held on 17.05.2019. Following members were present in the meeting:

- (1) Dr. Yamuna Devi C. R., Chairman
- (2) Dr. Jayanthi K. Murthy, External Subject Expert
- (3) Dr. Rathna G.N, External Subject Expert
- (4) Dr. Ashwath, External Subject Expert
- (5) Dr. Parameshachari B.D, External Subject Expert
- (6) Dr. K. Viswanath , VTU Nominee
- (7) Mr. Sharaschandra M. K., Industry Representative
- (8) Mr. Sunil, Industry Representative
- (9) Mrs. Supriya Raghavendra Rao, Industry Representative
- (10) Mr. Kirthi Prakash , Alumni with PG degree
- (11) Dr. B. Sivakumar, Internal faculty member
- (12) Dr. Prashanth C.R., Internal faculty member
- (13) K. V. Mahesan, Internal faculty member
- (14) Dr. Chandrakala V. , Internal faculty member
- (15) Vidya H., Internal faculty member
- (16) Shruthi P. C. , Internal faculty member
- (17) Usha Rani M. A. , Internal faculty member
- (18) Kavitha Narayan B. M., Internal faculty member

Chairman-BOS welcomed all the members for BOS meeting.

**RESOLUTIONS OF BOS MEETING**

Following are the resolutions of BOS meeting for UG and PG scheme and syllabus held on 17.05.2019:

1. Regarding vision, mission, PEOs related to NBA, it was suggested to reduce the number of PEOs to 2 or 3, instead of 4, so that the mapping can be justified.
2. Members suggested that aspects of Telecommunication should be inculcated in software used in laboratories.
3. It was suggested to include one Elective subject from 5th semester, instead of 2 electives in 6th semester and to increase the evaluation components like week to week assessment.
4. The subject Field Theory (18TE36) in 3rd semester can be swapped with Signals & Systems (18TE44) of 4th semester.
5. In the subject AC + LIC (18TE43), the topics SSBC which is in 2nd unit and VSB which is in 3rd unit, can be combined together in one unit itself. Also, the units can be distributed such that first three unit consists of contents related to Analog Communication (AC) and the last units related to LIC.
6. The Programming in HDL (18TE45) can be combined with the subject DSP (18TE52) and any new subject like Machine Learning, Deep Learning, Data Analytics, IoT, RF Design, Analog, Digital & Mixed mode signals etc., could be introduced in its place.
7. It was suggested to introduce online courses having credits in syllabus.
8. For current 3rd and 4th year students, existing schemes and syllabus was approved (Total 200 credits)
9. Subjects for Honours and Minor degree in last two years of the degree were suggested by members.
10. For PG M Tech, DCN degree, it was suggested that the teaching and tutorials hours can be revised and verified for all the subjects.
11. It was noted that an internship of 6 weeks is not enough for PG students; hence it was proposed that a 10 month internship period be allotted for the students.
12. It was suggested that a coding related subject and a networking related subject be introduced in the curriculum for PG students.

**Dr. AMBEDKAR INSTITUTE OF TECHNOLOGY, BANGALORE – 560056**  
**(An Autonomous Institute affiliated to VTU)**  
**DEPARTMENT OF TELECOMMUNICATION ENGINEERING**

**BOS MEETING PROCEEDINGS**

**Date:20/08/2020**

The Chairman Board of Studies (UG and PG programs) welcomed all the members for BOS committee and informed about the scheme and syllabus of UG and PG programs for the academic year 2020-21. Following members were present in the meeting:

- (1) Dr. Yamuna Devi C R., Chairman
- (2) Dr. Jayanthi K. Murthy, External Subject Expert
- (3) Dr. Rathna G.N, External Subject Expert
- (4) Dr. Ashwath, External Subject Expert
- (5) Dr. Parameshachari B.D, External Subject Expert
- (6) Er. Manisha Yadav, Invited Member
- (7) Dr. K. Viswanath, VTU Nominee
- (8) Mr. Sharaschandra M.K, Industry Representative
- (9) Mr. Sunil, Industry Representative
- (10) Ms. Supriya Raghavendra Rao, Industry Representative
- (11) Mr. Kirthi Prakash, alumni with PG degree
- (12) Dr. B. Sivakumar, Internal Faculty Member
- (13) Mr. Mahesan K.V. Internal Faculty Member
- (14) Dr. Vidya H, Internal Faculty Member
- (15) Mrs. Sudha T, Internal Faculty Member
- (16) Dr. Aravinda H L, Internal Faculty Member
- (17) Mrs. Usha Rani M.A, Internal Faculty Member
- (18) Dr. Prashanth C. R., Internal Faculty Member
- (19) Dr. Chandrakala V., Internal Faculty Member

Chairman BOS welcomed all the members for BOS meeting.

Detailed discussions were held regarding Scheme and syllabus of UG and PG courses for 2017 admitted students(UG), 2018 onwards admitted students(UG), 2018 onwards admitted students(PG), and 2020 admitted students(PG), and the following suggestions were given by members.

### UG:-

1. To introduce online Internship program.
  - Chairman informed that some students have completed online internships.
2. To combine online courses under open electives head.
3. To introduce Virtual Labs to curriculum.
4. To include NPTEL and SWAYAM courses as credit and non-credit courses.
5. To include Virtual Labs, and also conduct and record hardware experiments and share among students.
  - Chairman informed that for previous semester, videos of experiments were shared with students and also uploaded in Institute website.
6. To conduct experiments in Virtual Lab and inform students to record and send to teachers.
7. To change the mode of conduction and question paper pattern for online SEE.
8. To record and share theory class videos, Material links, online videos in case of technical problems.
  - Chairman informed that few teachers are recording and sharing classes, materials and videos with students.
9. To use any open source software like Sci lab.
  - Chairman informed that suitable software is used in every lab for conduction of few demo experiments.
10. To introduce any online meeting tools like Webex, Google meet and Microsoft teams (licenced version).
11. To invite industry expert to teach theory and Laboratory.
  - Chairman informed that an industry expert from Simons was invited to teach a part of IV semester course (Fundamentals of Telecommunications) in previous semester.

### PG:-

1. To verify the elective subjects in ELECTIVE -I, II,III, IV with equal distribution in communication and networking.
  - After discussion with senior faculty it was verified that electives have equal distribution in communication and networking.
2. Industrial Exposure is to be introduced for 1<sup>st</sup> year students.

BOS members gave their approval for scheme and syllabus mentioned above for UG and PG courses including the elective courses. Chairman informed that for few of the suggestions given by members, discussions are going on at the Institute level and changes will be incorporated as per the decisions taken by the higher authorities. Members of the BOS Committee gave their approval for scheme and syllabus of UG & PG courses.

The Chairman BOS(UG and PG) concluded the meeting after thanking all the members present.

Chairman-BoS

  
H.O.D.

Dept. of Telecommunication Engg.  
Dr. Ambedkar Institute of Technology,  
Bangalore-560 056

Dr. Ambedkar Institute of Technology  
(An Autonomous Institute affiliated to VTU)  
**Department of Electronics & Telecommunication Engineering**

Date: 20.05.2021

**Preliminary BOS Meeting -2**

To discuss about formulating scheme and syllabus for forthcoming Academic year 2021-22 , an online preliminary BOS meeting for UG was conducted in the presence of all the faculty members on 20.05.2021 at 11.30 am.

Following faculty members were present for the meeting:

Sl. No.	Name
1.	Dr. Yamuna Devi C. R.
2.	Dr. B. Sivakumar
3.	Dr. Prashanth C. R.
4.	Dr. Vidya H.
5.	Dr. Sudha T.
6.	Mahesan K. V.
7.	Dr. Chandrakala V.
8.	Dr. Shruthi P. C.
9.	Dr. Aravinda H.L.
10.	Usha Rani M. A.
11.	Praveen K. B.
12.	Kavitha Narayan B. M.
13.	Sowmya M.

Chairman-BOS & HOD welcomed the faculty members and briefed about the proposed syllabus and requested faculty members to give their suggestions for improvisation, especially regarding final year syllabus which is to be newly implemented in the forthcoming academic year.

Following suggestions/opinions were expressed by the faculty members during the meeting, regarding the proposed scheme and syllabus :

- (1) The subject "Microwave Engineering" in 7<sup>th</sup> semester can be renamed as "Microwaves & RADAR" to emphasize that RADAR which is essential application in telecommunication is dealt in the course.

- (2) Syllabus of the subject “Optical Communication & Networking” to be revised.
- (3) In the syllabus of professional elective “Mobile Communication” in 7<sup>th</sup> semester, along with other generations of mobile technology , 5G also to be mentioned.
- (4) In the syllabus of professional elective “Artificial Intelligence and Machine Learning” along with Neural Networks concepts, genetic algorithm has to be included.
- (5) Regarding professional elective “Spread Spectrum Communication”, more specific topics about PN sequence to be included, and also order of units can be modified.
- (6) In professional elective “Digital Image Processing” the topic image fragmentation can be included along with Image segmentation. Python implementation can be mentioned in any of the units.
- (7) For professional elective “Internet of Things”, the book “**Internet of Things (A Hands-on-Approach)**” by Vijay Madiseti and Arshdeep Bahga to be included as Text Book 2.
- (8) Inclusion of subject “Internet of Things for Mobile Applications” as Open Elective by the department was suggested.

Faculty members were informed to put advanced relevant topics and included latest edition of books.

HOD & Chairman-BOS thanked all the faculty members for participating and giving their inputs and concluded the meeting.

*Anavinda H.L*  
Syllabus/BoS Coordinator

*Yana D*  
HOD & Chairman-BOS

Dept. of Electronics & Telecommunication Engg.  
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**Dr.Ambedkar Institute of Technology**  
**Department of Electronics & Telecommunication Engineering**

**Date: 22/07/2022**

W/Cs to Dean(A),  
Dr.AIT, Bengaluru.

**Minutes of the Meeting : Board of Studies Meeting - 2022**

To discuss the draft scheme prepared as per New Education Policy (NEP) for 3rd to 8th Semester B.E, Electronics & Telecommunication Engineering to be implemented for 2021-22 admitted batch and the syllabus for forthcoming academic year 2022-23, a Board of Studies meeting was conducted on 22.07.2022. Following members were present in the meeting:

1. Dr. Yamuna Devi C R, Assoc. Prof. & HOD, Dept. of ETE, Dr.AIT
2. Dr. K. C. Narasimhamurthy, External Subject Expert, Prof. & Head, Dept. of ETE, SIT, Tumkur.
3. Dr. S. Shanthala, External Subject Expert, Professor & Head, Dept. of ETE, Bangalore Institute of Technology, Bangalore.
4. Dr. Rajeshwari Hegde, External Subject Expert, Professor, Dept. of ETE, BMS College of Engineering, Bangalore.
5. Dr. Vinod B. Durdi, External Subject Expert, Assoc. Professor, Dept. of ETE, Dayananda Sagar College of Engineering, Bangalore.
6. Er. Manisha Yadav, Invited Member, HOD, Dept. of ECE, IET AYODHYA.
7. Dr. Parameshachari B.D, VTU Nominee, HOD, Dept. of TCE, GSSSIETW, Mysuru.
8. Mr. Madhusudhan Rao, Industry Representative, Principal Product Manager, Oracle Database Outbound Product Management, Oracle corp., Bangalore.
9. Mr. Ajay K., Industry Representative, Senior Software Engineer, CISCO Systems India Pvt. Ltd., Bangalore.
10. Dr. B. Sivakumar, Internal Member, Professor, Dept. of ETE, Dr.AIT, Bangalore.
11. Dr. Prashanth C. R., Internal Member, Professor, Dept. of ETE, Dr.AIT, Bangalore.
12. Dr. Mahesan K. V., Internal Member, Assoc. Professor, Dept. of ETE, Dr.AIT, Bangalore.
13. Dr. Vidya H, Internal Member, Assoc. Professor, Dept. of ETE, Dr.AIT, Bangalore.
14. Dr. Sudha T, Internal Member, Assoc. Professor, Dept. of ETE, Dr.AIT, Bangalore.



15. Dr. Chandrakala V., Internal Member, Assoc. Professor, Dept. of ETE, Dr.AIT, Bangalore.
16. Dr. Aravinda H. L., Internal Member, Asst. Professor, Dept. of ETE, Dr.AIT, Bangalore.
17. Mrs. Usharani M. A., Internal Member, Asst. Professor, Dept. of ETE, Dr.AIT, Bangalore.

Chairman welcomed the BOS members. Explained the members about scheme structure as per NEP and gave the overview of draft scheme formulated. Following were the points suggested by Subject experts and resolutions taken:

1. Regarding the 3rd Semester Integrated Professional Core Course “Digital System Design using VHDL” it was suggested that Verilog can be considered instead of VHDL. Since many companies in IT industry are using Verilog it was decided to replace VHDL with Verilog in the syllabus.
2. Members suggested that theory of Microcontrollers must be incorporated in the syllabus.  
After discussion, it was decided to include “Microcontrollers” as an Ability Enhancement Course Theory in 3rd Semester.
3. It was suggested by some of the members that Signals & Systems and DSP can be combined into single subject.  
Concerned subject incharges expressed their opinion that contents of both the subjects are vast and it was decided to retain them as separate subjects.
4. Suggestions were given that in 3rd Semester subject “Analog Electronic Circuits” more topics on FET and MOSFET must be included. In Linear Integrated Circuit topics of the subject Sample and Hold Circuit must be included.  
It was decided to incorporate both the suggestions.
5. Members gave their opinion that Ability Enhancement Courses, along with Simulation experiments some more experiments using Sensors and other hardware implementation are to be included.

As these courses are implemented for the first time, it was decided to retain the Simulation experiments.

6. Subject experts suggested that in the subject "Circuits & Controls", Bode Plot technique needs to be included and instead of Block diagram reduction rules, Signal flow graph to be included. Further, in the Laboratory component time-response specification experiment must be Included.

It was decided to incorporate all the suggestions.


7. In communication laboratory, LabVIEW experiments can be included for better visualization of types of modulation.

It was decided to include two demonstration experiments in LabVIEW.

8. It was suggested that subject on "Python Programming" has to be included in the syllabus.

It was decided that the Ability Enhancement Course titled "Octave/Scillab for Signals" to be modified as "Octave/Python for Signals" in 4th semester.

9. Transmission Line and Waveguides has to be included in the syllabus. It was resolved that Transmission Line theory can be included as Ability Enhancement Course in 4<sup>th</sup> semester and Waveguides to be included in Microwave & Antenna subject present in 5<sup>th</sup> Semester.

  
Chairman-BOS  
Dept of ETE

**Dr. Ambedkar Institute of Technology**  
**(An Autonomous Institute affiliated to VTU)**  
**SCHEME OF TEACHING AND EXAMINATION III SEMESTER (Autonomous) 2018-19 academic year**  
**B.E., TELECOMMUNICATION ENGINEERING**

Sl. No.	Subject Code	Title	Teaching Department	Teaching hours per week			Maximum Marks				Examination Credits
				Lecture	Tutorial	Practical / Project	CIE	Assgn./ Industrial visit	SEE	Total	
1.	MA31	Engg. Maths – III	Mathematics	03	02	-	45	5	50	100	4
2.	TE31	Electronic Devices & Circuits	TE	04	-	-	45	5	50	100	4
3.	TE32	Digital System Design	TE	04	-	-	45	5	50	100	4
4.	TE33	Circuit Theory	TE	03	-	-	45	5	50	100	3
5.	TE34	Measurements & Instrumentation	TE	03	-	-	45	5	50	100	3
6.	TE35	Field Theory	TE	03	02	-	45	5	50	100	4
7.	TEL36	EDC Lab	TE	-	-	02	50	-	50	100	1.5
9.	TEL37	DSD Lab	TE	-	-	02	50	-	50	100	1.5
<b>Grand Total</b>							420	30	450	900	25

**Chairman - BOS**

**Dr. Ambedkar Institute of Technology**  
**(An Autonomous Institute affiliated to VTU)**  
**SCHEME OF TEACHING AND EXAMINATION IV SEMESTER (Autonomous) 2018-19 academic year**  
**B.E. TELECOMMUNICATION ENGINEERING**

Sl. No.	Subject Code	Title	Teaching Department	Teaching hours per week			Maximum Marks allotted				Examination Credits
				Lecture	Tutorial	Practical / Project	CIE	Assgn./ Industrial visit	SEE	Total	
1.	MA41	Engg. Mathematics – IV	Mathematics	03	02	-	45	05	50	100	4
2.	TE41	Microcontrollers	TE	04	-	-	45	05	50	100	4
3.	TE42	Transmission Lines & Control Systems	TE	04	-	-	45	05	50	100	4
4.	TE43	Signals & Systems	TE	03	02	-	45	05	50	100	4
5.	TE44	Programming in HDL	TE	03	-	-	45	05	50	100	3
6.	TE45	Op. Amp. & its applications	TE	03	-	-	45	05	50	100	3
7.	TEL46	Microcontrollers Lab	TE	-	-	02	45	-	50	100	1.5
8.	TEL47	HDL Lab	TE	-	-	02	45	-	50	100	1.5
<b>Grand Total</b>							420	30	450	900	25

**Chairman – BOS**

**Dr. Ambedkar Institute of Technology**  
**(An Autonomous Institute affiliated to VTU)**  
**SCHEME OF TEACHING AND EXAMINATION V SEMESTER (Autonomous) 2018-19 academic year**  
**B.E., TELECOMMUNICATION ENGINEERING**

Sl. No.	Subject Code	Title	Teaching Department	Teaching hours per week			Maximum Marks allotted			Examination Credits
				Lecture	Tutorial	Practical / Project	CIE	SEE	Total	
1.	HS03	Management & Entrepreneurship	TE	04	-	-	50	50	100	4
2.	TE51	Digital signal Processing	TE	03	02	-	50	50	100	4
3.	TE52	Analog Communication	TE	04	-	-	50	50	100	4
4.	TE53	Antenna & Wave Propagation	TE	02	02	-	50	50	100	3
5.	TE 54	Telecommunication Switching Systems	TE	04	-	-	50	50	100	4
6.	TE55	Fundamentals of CMOS VLSI	TE	03	-	-	50	50	100	3
7.	TEL56	DSP Lab	TE	-	-	3	50	50	100	1.5
8.	TEL57	Analog Communication + LIC Lab	TE	-	-	3	50	50	100	1.5
Grand Total							450	450	900	25

**Chairman-BOS**

**Dr. Ambedkar Institute of Technology**  
(An Autonomous Institute affiliated to VTU)

**SCHEME OF TEACHING AND EXAMINATION VI SEMESTER (Autonomous) 2018-19 academic year**  
**B.E., TELECOMMUNICATION ENGINEERING**

Sl. No.	Sub Code	Subject Title	Teaching Department	Teaching hours per week			Maximum Marks allotted			Examination Credits
				Lecture	Tutorial	Practical / Project	CIE	SEE	Total	
1.	<b>TE61</b>	Digital Communication	TE	02	02	-	50	50	100	3
2.	<b>TE62</b>	Embedded System Design	TE	02	02	-	50	50	100	3
3.	<b>TE63</b>	Satellite Communication	TE	03	-	-	50	50	100	3
4.	<b>TE64</b>	Microwave Engineering	TE	02	02	-	50	50	100	3
5.	<b>TE65</b>	Information Theory & Coding	TE	04	-	-	50	50	100	4
6.	<b>TE66x</b>	Elective-I (Group-A)	TE	04	-	-	50	50	100	4
7.	<b>TEL67</b>	Microwave Lab	TE	-	-	3	50	50	100	1.5
8.	<b>TEL68</b>	Digital Communication Lab	TE	-	-	3	50	50	100	1.5
9	<b>TEP69</b>	Mini Project	TE	-	-	3	50	50	100	2
Grand Total							450	450	900	25

<b>* Elective 1 : Group A</b>	
<b>TE661</b>	OOPS using C++
<b>TE662</b>	ARM Processor
<b>TE663</b>	Adaptive Signal Processing
<b>TE664</b>	Operating Systems

**Chairman-BOS**

**Dr. Ambedkar Institute of Technology**  
(An Autonomous Institute affiliated to VTU)

**SCHEME OF TEACHING AND EXAMINATION VII SEMESTER (Autonomous) 2018-19 academic year**  
**B.E., TELECOMMUNICATION ENGINEERING**

Sl. No.	Sub Code	Subject Title	Teaching Department	Teaching hours per week			Maximum Marks allotted			Examination Credits
				Lecture	Tutorial	Practical / Project	CIE	SEE	Total	
1.	HS04	Intellectual Property Rights	HS	02	-	-	25	25	50	2
2.	TE71	Optical Fiber Communication	TE	03	-	-	50	50	100	3
3.	TE72	Mobile Communication	TE	04	-	-	50	50	100	4
4.	TE73	Computer Communication Networks	TE	02	02	-	50	50	100	3
5.	TE74x	*Elective -2 ( Group – B)	TE	03	-	-	50	50	100	3
6.	TEL75	Optical & Microstrip Lab	TE	-	-	3	50	50	100	1.5
7.	TEL76	CCN lab	TE	-	-	3	50	50	100	1.5
8.	TEP77	Project Work Phase-I	TE	-	-	-	50	-	50	-
9.	IDE	Inter-Dept. Elective*	TE	04	-	-	50	50	100	4
Grand Total							425	375	800	22

**\* Elective2 : Group B**

TE741	Modeling & Simulation of Data Networks
TE742	CAD for VLSI
TE743	Data Structures using C++
TE744	Digital Image Processing
TE745	Video Engineering
TE746	Internet of Things

**\* Inter-Departmental Electives offered to other Departments**

TEE01	Internet Engineering and Application
TEE02	Real Time Operating systems
TEE03	DSP Algorithms & Architecture
TEE04	RADAR and Radio Aids to Navigation

**Chairman-BOS**

**Dr. Ambedkar Institute of Technology**  
(An Autonomous Institute affiliated to VTU)

**SCHEME OF TEACHING AND EXAMINATION VIII SEMESTER (Autonomous) 2018-19 academic year**  
**B.E., TELECOMMUNICATION ENGINEERING**

Sl. No.	Sub Code	Subject Title	Teaching Department	Teaching hours per week			Maximum Marks			Examination Credits
				Lecture	Tutorial	Practical / Project	CIE	SEE	Total	
1.	<b>TE81</b>	Optical Networking	TE	03	-	-	50	50	100	3
2.	<b>TE82</b>	Multimedia Communication	TE	03	-	-	50	50	100	3
3.	<b>TE83x</b>	Elective-3 Group C	TE	04		-	50	50	100	4
4.	<b>TEP84</b>	Project Work Phase II	TE	-	-	2	50	50	100	12
5.	<b>TES85</b>	Subject Seminar	TE	-	-	-	50	-	50	2
6.	<b>IDE</b>	Inter-Dept. elective*	TE	4	-	-	50	50	100	4
							300	250	550	28

**\* Elective 3: Group C**

<b>TE831</b>	Adhoc Wireless Networks
<b>TE832</b>	Cryptography & Network Security
<b>TE833</b>	VLSI in Telecommunications
<b>TE834</b>	High performance computer networks
<b>TE835</b>	<b>GSM</b>

**\* Inter-Departmental Electives offered to other Departments (Offered in 7<sup>th</sup> and 8<sup>th</sup> Semesters)**

<b>TEE01</b>	Internet Engineering and Application
<b>TEE02</b>	Real Time Operating systems
<b>TEE03</b>	DSP Algorithms & Architecture
<b>TEE04</b>	RADAR and Radio Aids to Navigation

**Chairman-BOS**



**Dr. Ambedkar Institute of Technology**  
**(An Autonomous Institute affiliated to VTU)**  
**SCHEME OF TEACHING AND EXAMINATION III SEMESTER (Autonomous) 2019-20 academic year**  
**B.E., TELECOMMUNICATION ENGINEERING**

Sl. No.	Subject Code	Title	Teaching Department	Teaching hours per week			Maximum Marks				Examination Credits
				Lecture	Tutorial	Practical / Project	CIE	Assgn./ Industrial visit	SEE	Total	
1.	MA31	Engg. Maths – III	Mathematics	03	02	-	45	5	50	100	4
2.	TE31	Electronic Devices & Circuits	TE	04	-	-	45	5	50	100	4
3.	TE32	Digital System Design	TE	04	-	-	45	5	50	100	4
4.	TE33	Circuit Theory	TE	03	-	-	45	5	50	100	3
5.	TE34	Measurements & Instrumentation	TE	03	-	-	45	5	50	100	3
6.	TE35	Field Theory	TE	03	02	-	45	5	50	100	4
7.	TEL36	EDC Lab	TE	-	-	02	50	-	50	100	1.5
9.	TEL37	DSD Lab	TE	-	-	02	50	-	50	100	1.5
<b>Grand Total</b>							420	30	450	900	25

**Chairman - BOS**

**Dr. Ambedkar Institute of Technology**  
**(An Autonomous Institute affiliated to VTU)**  
**SCHEME OF TEACHING AND EXAMINATION IV SEMESTER (Autonomous) 2019-20 academic year**  
**B.E. TELECOMMUNICATION ENGINEERING**

Sl. No.	Subject Code	Title	Teaching Department	Teaching hours per week			Maximum Marks allotted				Examination Credits
				Lecture	Tutorial	Practical / Project	CIE	Assgn./ Industrial visit	SEE	Total	
1.	MA41	Engg. Mathematics – IV	Mathematics	03	02	-	45	05	50	100	4
2.	TE41	Microcontrollers	TE	04	-	-	45	05	50	100	4
3.	TE42	Transmission Lines & Control Systems	TE	04	-	-	45	05	50	100	4
4.	TE43	Signals & Systems	TE	03	02	-	45	05	50	100	4
5.	TE44	Programming in HDL	TE	03	-	-	45	05	50	100	3
6.	TE45	Op. Amp. & its applications	TE	03	-	-	45	05	50	100	3
7.	TEL46	Microcontrollers Lab	TE	-	-	02	45	-	50	100	1.5
8.	TEL47	HDL Lab	TE	-	-	02	45	-	50	100	1.5
<b>Grand Total</b>							420	30	450	900	25

**Chairman – BOS**

**Dr. Ambedkar Institute of Technology**  
**(An Autonomous Institute affiliated to VTU)**  
**SCHEME OF TEACHING AND EXAMINATION V SEMESTER (Autonomous) 2019-20 academic year**  
**B.E., TELECOMMUNICATION ENGINEERING**

Sl. No.	Subject Code	Title	Teaching Department	Teaching hours per week			Maximum Marks allotted			Examination Credits
				Lecture	Tutorial	Practical / Project	CIE	SEE	Total	
1.	HS03	Management & Entrepreneurship	TE	04	-	-	50	50	100	4
2.	TE51	Digital signal Processing	TE	03	02	-	50	50	100	4
3.	TE52	Analog Communication	TE	04	-	-	50	50	100	4
4.	TE53	Antenna & Wave Propagation	TE	02	02	-	50	50	100	3
5.	TE 54	Telecommunication Switching Systems	TE	04	-	-	50	50	100	4
6.	TE55	Fundamentals of CMOS VLSI	TE	03	-	-	50	50	100	3
7.	TEL56	DSP Lab	TE	-	-	3	50	50	100	1.5
8.	TEL57	Analog Communication + LIC Lab	TE	-	-	3	50	50	100	1.5
Grand Total							450	450	900	25

**Chairman-BOS**

**Dr. Ambedkar Institute of Technology**  
(An Autonomous Institute affiliated to VTU)

**SCHEME OF TEACHING AND EXAMINATION VI SEMESTER (Autonomous) 2019-20 academic year**  
**B.E., TELECOMMUNICATION ENGINEERING**

Sl. No.	Sub Code	Subject Title	Teaching Department	Teaching hours per week			Maximum Marks allotted			Examination Credits
				Lecture	Tutorial	Practical / Project	CIE	SEE	Total	
1.	TE61	Digital Communication	TE	02	02	-	50	50	100	3
2.	TE62	Embedded System Design	TE	02	02	-	50	50	100	3
3.	TE63	Satellite Communication	TE	03	-	-	50	50	100	3
4.	TE64	Microwave Engineering	TE	02	02	-	50	50	100	3
5.	TE65	Information Theory & Coding	TE	04	-	-	50	50	100	4
6.	TE66x	Elective-I (Group-A)	TE	04	-	-	50	50	100	4
7.	TEL67	Microwave Lab	TE	-	-	3	50	50	100	1.5
8.	TEL68	Digital Communication Lab	TE	-	-	3	50	50	100	1.5
9.	TEP69	Mini Project	TE	-	-	3	50	50	100	2
Grand Total							450	450	900	25

**\* Elective 1 : Group A**

TE661	OOPS using C++
TE662	ARM Processor
TE663	Adaptive Signal Processing
TE664	Operating Systems

**Chairman-BOS**

**Dr. Ambedkar Institute of Technology**  
(An Autonomous Institute affiliated to VTU)

**SCHEME OF TEACHING AND EXAMINATION VII SEMESTER (Autonomous) 2019-20 academic year**  
**B.E., TELECOMMUNICATION ENGINEERING**

Sl. No.	Sub Code	Subject Title	Teaching Department	Teaching hours per week			Maximum Marks allotted			Examination Credits
				Lecture	Tutorial	Practical / Project	CIE	SEE	Total	
1.	HS04	Intellectual Property Rights	HS	02	-	-	25	25	50	2
2.	TE71	Optical Fiber Communication	TE	03	-	-	50	50	100	3
3.	TE72	Mobile Communication	TE	04	-	-	50	50	100	4
4.	TE73	Computer Communication Networks	TE	02	02	-	50	50	100	3
5.	TE74x	*Elective -2 ( Group - B)	TE	03	-	-	50	50	100	3
6.	TEL75	Optical & Microstrip Lab	TE	-	-	3	50	50	100	1.5
7.	TEL76	CCN lab	TE	-	-	3	50	50	100	1.5
8.	TEP77	Project Work Phase-I	TE	-	-	-	50	-	50	-
9.	IDE	Inter-Dept. Elective*	TE	04	-	-	50	50	100	4
Grand Total							425	375	800	22

**\* Elective2 : Group B**

TE741	Modeling & Simulation of Data Networks
TE742	CAD for VLSI
TE743	Data Structures using C++
TE744	Digital Image Processing
TE745	Video Engineering
TE746	Internet of Things

**\* Inter-Departmental Electives offered to other Departments**

TEE01	Internet Engineering and Application
TEE02	Real Time Operating systems
TEE03	DSP Algorithms & Architecture
TEE04	RADAR and Radio Aids to Navigation

**Chairman-BOS**

**Dr. Ambedkar Institute of Technology**  
(An Autonomous Institute affiliated to VTU)

**SCHEME OF TEACHING AND EXAMINATION VIII SEMESTER (Autonomous) 2019-20 academic year**  
**B.E., TELECOMMUNICATION ENGINEERING**

Sl. No.	Sub Code	Subject Title	Teaching Department	Teaching hours per week			Maximum Marks			Examination Credits
				Lecture	Tutorial	Practical / Project	CIE	SEE	Total	
1.	<b>TE81</b>	Optical Networking	<b>TE</b>	03	-	-	50	50	100	3
2.	<b>TE82</b>	Multimedia Communication	<b>TE</b>	03	-	-	50	50	100	3
3.	<b>TE83x</b>	Elective-3 Group C	<b>TE</b>	04		-	50	50	100	4
4.	<b>TEP84</b>	Project Work Phase II	<b>TE</b>	-	-	2	50	50	100	12
5.	<b>TES85</b>	Subject Seminar	<b>TE</b>	-	-	-	50	-	50	2
6.	<b>IDE</b>	<b>Inter-Dept. elective*</b>	<b>TE</b>	4	-	-	50	50	100	4
							300	250	550	28

**\* Elective 3: Group C**

<b>TE831</b>	Adhoc Wireless Networks
<b>TE832</b>	Cryptography & Network Security
<b>TE833</b>	VLSI in Telecommunications
<b>TE834</b>	High performance computer networks
<b>TE835</b>	GSM

**\* Inter-Departmental Electives offered to other Departments (Offered in 7<sup>th</sup> and 8<sup>th</sup> Semesters)**

<b>TEE01</b>	Internet Engineering and Application
<b>TEE02</b>	Real Time Operating systems
<b>TEE03</b>	DSP Algorithms & Architecture
<b>TEE04</b>	RADAR and Radio Aids to Navigation

**Chairman-BOS**

2021-2022 academic year

<b>Credit break down/distribution for all semesters BE programme</b>	
<b>Semester</b>	<b>Credits</b>
<b>I &amp; II</b>	<b>20 + 20 = 40</b>
<b>III</b>	<b>24</b>
<b>IV</b>	<b>24</b>
<b>V</b>	<b>25</b>
<b>VI</b>	<b>24</b>
<b>VII</b>	<b>23</b>
<b>VIII</b>	<b>15</b>
<b>Total</b>	<b>175</b>

2021-2022 academic year

**Dr. Ambedkar Institute of Technology, Bengaluru-560 056**

SCHEME OF TEACHING AND EXAMINATION from Academic Year 2018-19

**B.E TELECOMMUNICATION ENGINEERING**

Outcome Based Education (OBE) and Choice Based Credit System (CBCS)

**III SEMESTER**

Sl. No	Course and Course Code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	BC	18MA31	Transform calculus and boundary value problems	Mathematics	2	2	--	03	50	50	100	3
2	PC	18ET31	Electronic Devices & Circuits		4	0	--	03	50	50	100	4
3	PC	18ET32	Digital Systems Design		4	0	--	03	50	50	100	4
4	PC	18ET33	Network Theory		4	0	--	03	50	50	100	4
5	PC	18ET34	Linear Integrated Circuits		3	0	--	03	50	50	100	3
6	PC	18ET35	Field Theory		2	2	--	03	50	50	100	3
7	PC	18ETL36	Electronic Devices & Circuits Lab		--	--	3	03	50	50	100	1
8	PC	18ETL37	Digital Systems Design Lab		--	--	3	03	50	50	100	1
9	HS	18HS31/32	Constitution of India Professional Ethics and Human Rights/ / Env. Studies	Hu/Civ	1	--	--	02	50	50	100	1
10	MC	18HS33	Soft skills (MC)	Humanities	04		--	03	50	-	50	0
<b>TOTAL</b>					<b>24</b>	<b>04</b>	<b>06</b>	<b>29</b>	<b>500</b>	<b>450</b>	<b>950</b>	<b>24</b>

**Course prescribed to lateral entry Diploma holders admitted to III semester of Engineering programs**

11	MC	18MAD31	Advance Mathematics - I	Mathematics	02	01	--	03	50		50	0
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**Note:** HODs are informed to accommodate one more laboratory in addition to the above courses if needed, without altering the total number of credits (TOTAL: 24).

(a) **The mandatory non – credit courses** Advance Mathematics I and II prescribed at III and IV semesters respectively, to lateral entry Diploma holders admitted to III semester of BE programs shall compulsorily be registered during respective semesters to complete all the formalities of the course and appear for SEE examination.

(b) **The mandatory non – credit courses** Advance Mathematics I and II, prescribed to lateral entrant Diploma holders admitted to III semester of BE programs, are to be completed to secure eligibility to VII semester. However, they are not considered for vertical progression from II year to III year of the programme but considered as head of passing along with credit courses of the programme to eligibility to VII semester.

**Note: BC: Science Course, PC: Professional Core. Hu: Humanities, MC: Mandatory Course.**



**2021-2022 academic year**

**Dr. Ambedkar Institute of Technology, Bengaluru-56**  
 SCHEME OF TEACHING AND EXAMINATION from Academic Year 2018-19  
**B.E TELECOMMUNICATION ENGINEERING**  
 Outcome Based Education (OBE) and Choice Based Credit System (CBCS)

**IV SEMESTER**

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination			Credits	
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks		Total Marks
					L	T	P					
1	BC	18MA41	Numerical Methods and Statistical Techniques	Mathematics	2	2	--	03	50	50	100	3
2	PC	18ET41	Microcontroller using Assembly and C language		4	0	--	03	50	50	100	4
3	PC	18ET42	Fundamentals of Telecommunications		3	0	--	03	50	50	100	3
4	PC	18ET43	Signals & Systems		4	0	--	03	50	50	100	4
5	PC	18ET44	Fundamentals of Hardware Description Language		3	0	--	03	50	50	100	3
6	PC	18ET45	Transmission Lines & Wave guides		4	0	--	03	50	50	100	4
7	PC	18ETL46	Microcontroller Lab		--		3	03	50	50	100	1
8	PC	18ETL47	Programming in HDL Lab		--		3	03	50	50	100	1
9	HS	18HS41/42	Constitution of India Professional Ethics and Human Rights/ Env. Studies	Hum/Civ	1	--	--	02	50	50	100	1
10	MC	18HS43	Employability skills (MC)	Humanities	04		--	03	50	-	50	0
<b>TOTAL</b>					<b>25</b>	<b>02</b>	<b>06</b>	<b>29</b>	<b>500</b>	<b>450</b>	<b>950</b>	<b>24</b>

**Course prescribed to lateral entry Diploma holders admitted to III semester of Engineering programs**

11	MC	18MAD41	Advance Mathematics - II	Mathematics	02	01	--	03	50		50	0
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**Note:** HODs are informed to accommodate one more laboratory in addition to the above courses if needed, without altering the total number of credits (TOTAL: 24).

(a) The mandatory non – credit courses Advance Mathematics I and II prescribed at III and IV semesters respectively, to lateral entrant Diploma holders admitted to III semester of BE programs shall compulsorily be registered during respective semesters to complete all the formalities of the course and appear for SEE examination.

(b) The mandatory non – credit courses Advance Mathematics I and II, prescribed to lateral entrant Diploma holders admitted to III semester of BE programs, are to be completed to secure eligibility to VII semester. However, they are not considered for vertical progression from II year to III year of the programme but considered as head of passing along with credit courses of the programme to eligibility to VII semester.

**Note:** BC: Science Course, PC: Professional Core. Hu: Humanities, MC: Mandatory Course.  
 ENV: Environmental Studies, CIP: Constitution of India Professional Ethics and Human Rights

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SCHEME OF TEACHING AND EXAMINATION from Academic Year 2018-19

**B.E TELECOMMUNICATION ENGINEERING**

Outcome Based Education (OBE) and Choice Based Credit System (CBCS)

**V SEMESTER**

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	Hu	18HS51/52	M&E / IPR (title as per BOS decision)	Hu	2	--	--	03	50	50	100	3
2	PC	18ET51	Digital Signal Processing		2	2	--	03	50	50	100	3
3	PC	18ET52	Analog Communication		4	--	--	03	50	50	100	4
4	PC	18ET53	Antenna & Wave Propagation		3	--	--	03	50	50	100	3
5	PC	18ET54	ARM Processor and Embedded System Design		4	--	--	03	50	50	100	4
6	PE	18ET55X	Professional Elective-1		3	--	--	03	50	50	100	3
7	OE	18ET56X	Open Elective –A		3	--	--	03	50	50	100	3
8	PC	18ETL57	Signals systems and DSP Lab		--	--	2	03	50	50	100	1
9	PC	18ETL58	Analog Communication & LIC Lab		--	--	2	03	50	50	100	1
<b>TOTAL</b>					<b>20</b>	<b>4</b>	<b>4</b>	<b>27</b>	<b>450</b>	<b>450</b>	<b>900</b>	<b>25</b>

**Mini-project:** To be carried out during the intervening vacations of V and VI semesters. The SEE examination will be conducted during VI semester. The credit prescribed for mini – project is added to VI semester credits. The mini-project is considered as a head of passing and is considered for the award of degree. Those, who do not take-up/complete the mini-project will be declared as failed and have to complete during subsequent SEE examination after satisfy the Mini-project requirements. Also, mini-project is considered for eligibility to VII semester.

**Note: Hu: Humanities, PC: Professional Core, MC: Mandatory Course,**

Course code	Professional Electives -1
18ET551	Control Systems
18ET552	OOPs using C++
18ET553	VLSI in Telecommunication Engineering
18ET554	Principles of RADAR Engineering

Course code	Open Elective - A
18ET561	Embedded System Design
18ET562	Digital Image Processing

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**Outcome Based Education (OBE) and Choice Based Credit System (CBCS)**

**VI SEMESTER**

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination			Credits		
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks		Total Marks	
					L	T	P						
1	Hu	18HS61/62	M&E/IPR	Hu	2	2	--	03	50	50	100	3	
2	PC	18ET61	Computer Communication Networks		4	--	--	03	50	50	100	4	
3	PC	18ET62	Information Theory and Coding		3	--	--	03	50	50	100	3	
4	PC	18ET63	Digital Communication		3	2	--	03	50	50	100	4	
5	PE	18ET64X	Professional Elective -2		3	--	--	03	50	50	100	3	
6	OE	18ET65X	Open Elective –B		3	--	--	03	50	50	100	3	
7	PC	18ETL66	Digital Communication Lab		--	--	2	03	50	50	100	1	
8	PC	18ETL67	Computer Communication Network Lab		--	--	2	03	50	50	100	1	
9	M	18ETM68	Mini-project					03	50	50	100	2	
10	I	18ETI69	Internship	(To be carried out during the intervening vacations of VI and VII semesters )				--	--	--	--	--	--
<b>TOTAL</b>					<b>18</b>	<b>4</b>	<b>4</b>	<b>27</b>	<b>450</b>	<b>450</b>	<b>900</b>	<b>24</b>	

**Note: PC: Professional core, PE: Professional Elective, OE: Open Elective, MP: Mini-Project, INT: Internship.**

**Internship:** All the students admitted to III year of BE have to undergo mandatory internship of 4 weeks during the vacations of VI and VII semesters and /or VII and VIII semesters. A University examination will be conducted during VIII semester and prescribed credit are added to VIII semester. Internship is considered as a head of passing and is considered for the award of degree. Those, who do not take-up/complete the internship will be declared as failed and have to complete during subsequent University examination after satisfy the internship requirements.

**Electives**

		Open Elective -A
		Students can select any one of the open electives (Please refer to consolidated list of Dr AIT for open electives) offered by any Department. Selection of an open elective is not allowed provided,
Course code	Professional Electives -2	<ul style="list-style-type: none"> <li>The candidate has studied the same course during the previous semesters of the programme.</li> <li>The syllabus content of open elective is similar to that of Departmental core courses or professional electives.</li> <li>A similar course, under any category, is prescribed in the higher semesters of the programme.</li> </ul> Registration to electives shall be documented under the guidance of Programme Coordinator/ Mentor.
18ET641	Cryptography & Network Security	
18ET642	Advanced Signal Processing	
18ET643	Satellite Communication	
18ET644	Data structures using C++	
Course code		Open Elective –B
18ET651		Satellite Communication
18ET652		Data structures using C++

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Outcome Based Education (OBE) and Choice Based Credit System (CBCS)

**VII SEMESTER**

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	MC	18HS71/72	CMEP / OSHA	IM/CV	2	--	--	03	50	50	100	2
2	PC	18TE71	Microwave Engineering		4	--	--	03	50	50	100	4
3	PC	18TE72	Wireless and Mobile networks		4	--	--	03	50	50	100	4
4	PE	18TE73X	Professional Elective -3		3	--	--	03	50	50	100	3
5	PE	18TE74X	Professional Elective -4		3	--	--	03	50	50	100	3
6	OE	18TE75X	Open Elective –C		3	--	--	03	50	50	100	3
7	PC	18TEL76	Microwave Lab		--	--	2	03	50	50	100	1
8	PC	18TEL77	WMN Lab		--	--	2	03	50	50	100	1
9	P	18TEP78	Project Work Phase - 1		--	--	2	03	50	50	100	2
10	I	18TEI79	Internship	(If not completed after VI semester examinations, it has to be carried out during the intervening vacations of VII and VIII semesters )	--	--	--	--	--	--	--	--
<b>TOTAL</b>					<b>17</b>	<b>4</b>	<b>6</b>	<b>27</b>	<b>450</b>	<b>450</b>	<b>900</b>	<b>23</b>

**Note: PC: Professional Core, PE: Professional Elective, OE: Open Elective, INT: Internship, MC: Mandatory Course**

**Internship:** All the students admitted to III year of BE have to undergo mandatory internship of 4 weeks during the vacations of VI and VII semesters and /or VII and VIII semesters. A SEE examination will be conducted during VIII semester and prescribed credits shall be added to VIII semester. Internship is considered as a head of passing and is considered for the award of degree. Those, who do not take-up/complete the internship will be declared as failed and have to complete during subsequent SEE examination after satisfy the internship requirements.

**Electives**

Course code	Professional Electives – 3	Open Elective -B
18TE731	Optical Communication & Networking	Students can select any one of the open electives (Please refer to consolidated list of Dr. AIT for open electives) offered by any Department. Selection of an open elective is not allowed provided, <ul style="list-style-type: none"> <li>The candidate has studied the same course during the previous semesters of the programme.</li> <li>The syllabus content of open elective is similar to that of Departmental core courses or professional electives.</li> <li>A similar course, under any category, is prescribed in the higher semesters of the programme.</li> </ul> Registration to electives shall be documented under the guidance of Programme Coordinator/ Mentor.
18TE732	Mobile Communication	
18TE733	Artificial Intelligence and Machine Learning	
Cours ecode	Professional Electives – 4	
18TE741	Spread Spectrum Communication	
18TE742	Digital Image Processing	
18TE743	Internet of Things	

**CMEP: Cost Management of Engg Projects, OSHA: Occupational Safety and Health Administration**

Course code	Open Elective – C
18TE751	Wireless Sensor Networks
18TE752	Multi Media Communication

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**Outcome Based Education (OBE) and Choice Based Credit System (CBCS)**

**VIII SEMESTER**

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	MC	18XX81	CMEP / OSHA	IM /CV	4	--	--	03	50	50	100	2
2	P	18TEP82	Project Work Phase - 2		--	--	2	03	50	50	100	10
3	S	18TES83	Technical Seminar		--	--	2	03	50	50	100	1
4	I	18TEI84	Internship	(Completed during the intervening vacations of VI and VII semesters and /or VII and VIII semesters.)			03	50	50	100	2	
<b>TOTAL</b>					<b>4</b>	<b>--</b>	<b>4</b>	<b>12</b>	<b>200</b>	<b>200</b>	<b>400</b>	<b>15</b>

**Note: PC: Professional Core, PE: Professional Elective, INT: Internship, MC: Mandatory Course**

**Internship:** Those, who have not pursued /completed the internship will be declared as failed and have to complete during subsequent SEE examination after they satisfy the internship requirements.

**CMEP: Cost Management of Engg Projects, OSHA: Occupational Safety and Health Administration**

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**TYPICAL BREKDOWN FOR THE B.E DEGREE CURRICULUM**

#	Course Category*	Percentage(%) of Total Credits		Average number of Credits(Typical)
		MIN	MAX	
1	Humanities, Social Sciences & Management (HSMC)	5	10	10
2	Basic Sciences (BSC)	10	20	28
3	Engineering Sciences (ESC)	15	20	20
4	Professional Courses (PCC) - Core	30	40	64
5	Professional Courses (PEC) -Elective	10	15	20
6	Other Open Elective Courses (OEC)	5	10	08
7	Project Work (PROJ/ Seminar/ Internship, etc.,)	10	15	25